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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/778,130	02/06/2001	Jonathan Williams Haines	SEA10033/40046.149-US-U1	3191

7590 08/13/2004  
MERCHANT & GOULD P.C.  
P.O. Box 2903  
Minneapolis, MN 55402-0903

EXAMINER

LI, ZHUO H

ART UNIT PAPER NUMBER

2186

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 09/778,130	<b>Applicant(s)</b> HAINES ET AL.	
	<b>Examiner</b> Zhuo H Li	<b>Art Unit</b> 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is in response to the amendment filed 6/14/2004.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeMoney (US PAT. 6,385,673) in view of Gupta et al. (US 2002/0091722).

Regarding claim 1, DeMoney discloses a method for characterizing performance of a data handling system (300, figure 3) having a cache (405, figure 4) comprising the

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step of sending commands to the data handling system for a set of data blocks that are large relative to a size (col. 3 lines 7-12) of the cache dedicated for the commands and recording a block service time i.e., deadline time, for each large data block, (col. 11 line 24 through col. 13 line 61 and col. 15 lines 37-55). DeMoney differs from the claimed invention in not specifically teaching the steps of comparing the block service time to a first threshold and scoring the data handling system based on the comparison of block service time to the first threshold. However, Gupta teaches a validation of system I/O performance characteristics by comparing the different block sizes, including oversize data block ([0011]), service time to a respective estimated information management system I/O performance characteristic value, i.e., a first threshold, in order to monitoring the system I/O performance characteristics associated with the I/O resource, thereby it recognizes Gupta teaching to score the data handling system based on the comparison of the block service time to the first threshold to offer better cache performance in effectively improving system throughput ([0011-0012] and [0161-0174]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify DeMoney in comparing the block service time to a first threshold and scoring the data handling system based on the comparison of block service time to the first threshold, as per teaching of Gupta, in order to offer better cache performance in effectively improving system throughput.

Regarding claim 2, DeMoney discloses the data handling system including a disk drive (figure 2), as well as Gupta ([0050]).

Regarding claim 3, DeMoney discloses the commands being configured to cause the disk drive to parse the command, to seek to an appropriate track on a disk of the disk

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drive, to wait for an appropriate location on the disk, to track-follow on the appropriate track and pass data between a buffer of the disk drive and the disk and between the buffer and a host computer interfaced with the disk drive (col. 14 lines 5-27 and col. 16 line 20 through col. 17 line 21).

Regarding claim 4, DeMoney teaches the data handling system being configured to cause one or more networked computers to parse the command, to transmit a request for re-transmission over the network and to receive retried data transmitted over the network (col. 10 lines 5-33 and figure 3).

Regarding claim 5, DeMoney teaches the data blocks being randomly positioned (col. 17 line 22 through col. 18 line 13), as well as Gupta (col. 8 lines 19-26).

Regarding claim 6, Gupta discloses the scoring step comprising heavily and negatively weighting the block service times exceeding the first threshold, lightly and positively weighting the block service times not exceeding the first threshold and averaging the weighted block service time ([0156]-[0171]).

Regarding claim 7, DeMoney discloses the steps of recording the size of data quality errors produced in response to the commands, recording the frequency of data quality errors produced in response to the commands, i.e., peaks condition in the storage activity, and accounting for the size and frequency of data quality errors (col. 11 lines 5-39).

Regarding claim 8, DeMoney discloses the steps of estimating the minimum and the maximum sustained data rates from the recorded block service time (col. 11 line 40 through col. 13 line 5).

Regarding claim 9, DeMoney discloses the steps of estimating the location of data on a disk of the disk drive from the recorded block service time and corresponding commands and determining a fraction of the drive that allows block service time to not exceed first threshold from the estimated locations and corresponding block service times (col. 14 lines 5-27, col. 11 line 40 through col. 12 line 34 and col. 16 line 10 through col. 17 line 21).

Regarding claims 10-11, Gupta teaches to measure several different block sizes to validate a disk drive performance ([0162]-[0164]) so that it recognizes to compute a second threshold or a third threshold that varies from a size of data block and compare the block service time to either the second or the third threshold in order to score the data handling system.

Regarding claim 12, DeMoney discloses to send command that prioritize throughput over data quality (col. 17 line 32 through col. 18 line 42).

Regarding claim 13, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claim 14, the limitations of the claim are rejected as the same reasons set forth in claim 3.

Regarding claim 15, the limitations of the claim are rejected as the same reasons set forth in claim 4.

Regarding claim 16, the limitations of the claim are rejected as the same reasons set forth in claim 5.

Regarding claim 17, the limitations of the claim are rejected as the same reasons set forth in claim 7.

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Regarding claim 18, the limitations of the claim are rejected as the same reasons set forth in claims 10-11.

Regarding claim 20, DeMoney discloses a system (300, figure 3) for characterizing the performance of a data handling system comprising an interface (col. 10 lines 35-37) and a processing means for communicating command through the interface to the data handling system (col. 4 line 8 through col. 8 line 27 and col. 10 line 26 through col. 11 line 4). Demoney differs from the claimed invention in not specifically teaching the processing means for scoring the data handling system based on the response to the commands. However, Gupta teaches a validation of system I/O performance characteristics by comparing the different block sizes, including oversize data block ([0011]), service time to a respective estimated information management system I/O performance characteristic value, i.e., a first threshold, in order to monitoring the system I/O performance characteristics associated with the I/O resource, thereby it recognizes Gupta teaching to score the data handling system based on the comparison of the block service time to the first threshold to offer better cache performance in effectively improving system throughput ([0011-0012] and [0161-0174]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify DeMoney in having the processing means for scoring the data handling system based on the response to the commands, as per teaching of Gupta, in order to offer better cache performance in effectively improving system throughput.

***Allowable Subject Matter***

4. Claim 19 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

5. Applicant's arguments filed 6/14/2004 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to teaches to characterize performance of a data handling system having a cache by sending commands for a set of a data blocks that are large relative to a size of the cache dedicated for the command, DeMoney clearly teaches a data handling system (300, figure 3) having a buffer ring (405, figure 4), i.e., a cache, capable of handling a set of data blocks that are large relative to a size of each buffer ring dedicated for a command in order to characterize performance of the data handling system (col. 3 lines 7-12 and col. 11 line 40 through col. 12 line 22). Thus, the claimed limitations are taught by the combination of DeMoney and Gupta.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., to identify worst-case performance of the data handling system) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Accordingly, the claimed limitations



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merely define to characterize performance of a data handling system having a cache and to score the data handling system based on the comparison of the block service time to the first threshold, which the claimed limitations fails to disclose performance validation or performance characterization under worst-case condition and detection of worst-case condition for time-critical data handling system.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that DeMoney fails to teach the limitation of sending commands to the data handling system for a set of data blocks that are large relative to a size of the cache, DeMoney clearly teaches to send requests to the data handling system for a set data blocks, i.e., a data stream, that are large relative to a size of the buffer ring so that the data handling system is able to support a plurality of different media streams, i.e., different set of data blocks (col. 11 line 24 through col. 13 line 5). Thus, one of ordinary skill in the art would recognize DeMoney teaches to send commands to the data handling system for a set of blocks that are large relative to the size of the cache.

In response to applicant's argument that Gupta fails to use over size data in conjunction with performance validation testing, Gupta clearly teaches to validate if system I/O performance characteristics using different block sizes or large file size ([0173] and [0194]), wherein the different block sizes including relatively large FTP

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files ([0011] and [0044]). Thus, one of ordinary skill in the art would recognize Gupta teach to use over side data for performance validation.

In response to applicant's argument that claim 20 has not been properly examined, the previous Office action clearly point out that the claimed limitations are interpreted in light of the specification in giving them their broadest reasonable interpretation. Thus, it believes claim 20 had been properly examined.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any response to this final action should be mailed to:

BOX AF

Commissioner of Patents and Trademarks

Washington, D.C. 20231

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Or faxed to:

(703) 308-6606

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (Receptionist).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhuo H. Li whose telephone number is 703-305-3846.

The examiner can normally be reached on Tuesday to Friday from 9:30 a.m. to 7:00 p.m.

The examiner can also be reached on alternate Monday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim, can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Zhuo H. Li 



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MATTHEW KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100